Attachment 3

Project Justification

3.1 Project Summary Table

Table 4 – 2014 IRWM Drought Solicitation Project Summary Table		
Drought Project Element		**Project Name/ID** **Add 1 column per Project**
D.1	Provide immediate regional drought preparedness	1
D.2	Increase local water supply reliability and the delivery of safe drinking water	
D.3	Assist water suppliers and regions to implement conservation programs and measures that are not locally cost-effective	
D.4	Reduce water quality conflicts or ecosystem conflicts created by the drought	
IRWM Project Element		
IR.1	Water supply reliability, water conservation, and water use efficiency	1
IR.2	Stormwater capture, storage, clean-up, treatment, and management	1
IR.3	Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands	
IR.4	Non-point source pollution reduction, management, and monitoring	1
IR.5	Groundwater recharge and management projects	1
IR.6	Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users	1
IR.7	Water banking, exchange, reclamation, and improvement of water quality	1
IR.8	Planning and implementation of multipurpose flood management programs	
IR.9	Watershed protection and management	1
IR.10	Drinking water treatment and distribution	
IR.11	Ecosystem and fisheries restoration and protection	1

3.2 Project Description

3.2.1 Brief Project Description

City of Salinas/Monterey Regional Water Pollution Control Agency: Divert stormwater/dry-weather runoff for agricultural reuse, offsetting groundwater pumping in seawater-intruded aquifers and protecting drinking water supplies.

3.2.2 Project Justification

This project provides immediate regional drought preparedness. The project enhances the region's water supply by capturing highly polluted dry-weather urban and industrial runoff and stormwater runoff from neighborhoods in South Salinas and reclaiming that water for agricultural irrigation. The recycled water will be used as part of the Castroville Seawater Intrusion Project (CSIP), which provides recycled and diverted river water to 12,000 irrigated acres in the northern Salinas Valley to help offset groundwater pumping in the heavily seawater-intruded coastal aquifers of the Salinas Valley Groundwater Basin. The project will thus help reduce the advancement of seawater intrusion in the Salinas Valley Groundwater Basin, and more immediately, will help protect the drinking water supply for the disadvantaged community of Castroville.

Diverting surface runoff for reuse will increase water supply reliability and provide increased drought tolerance, not only for the coastal northern Salinas Valley and community of Castroville, but for the Greater Monterey County IRWM region as a whole, since almost the entire region depends upon the Salinas Valley Groundwater Basin for its water supply. Since the modifications will be permanent, the project will make more water available if the drought continues, during future droughts, and during non-drought operations. An additional and important benefit of the project is that it will significantly reduce the amount of pollutants discharged into the sensitive habitats of the Salinas River (designated as critical steelhead habitat) and the federally protected Monterey Bay National Marine Sanctuary (MBNMS).

Expedited funding for this project is necessary to ensure that this water be made available if the drought continues into 2015.

Drought Impacts Addressed

1. Reduces Risk of Not Meeting Drinking Water Demand. As stated above, this project adds a new water source to CSIP. By providing this additional water source to CSIP, the project will increase the longevity of the groundwater supply by reducing overdraft and seawater intrusion. As the groundwater basin provides all water for the Castroville Community Services District (CCSD), this project will help protect the drinking water supply for that disadvantaged community, which is in jeopardy if the current drought continues into 2015.
2. Reduces Risk of Not Meeting Agricultural Water Demand. By the same argument, this project will help protect the groundwater supply for growers in northern Salinas Valley, an area that may see crop reduction if the drought continues. The project will deliver more water directly to growers via CSIP by adding captured and reclaimed industrial and urban runoff as a supplemental water source.
3. Reduces Groundwater Overdraft and Seawater Intrusion. CSIP provides growers with recycled water to reduce groundwater usage and overdraft. The MRWPCA's wastewater treatment plant (WWTP), which provides the main CSIP water supply, is currently operating greatly under capacity. This project will collect and treat stormwater as well as dry-weather flows from industrial, agricultural and urban runoff from 1,630 acres in South Salinas. This stormwater diversion will provide an additional water source to MRWPCA's WWTP and CSIP, which will significantly help to reduce groundwater basin overdraft.
4. Reduces Drought-related TMDL Violations. The Salinas River is one of the more polluted inland water bodies in the country. Currently the highly polluted runoff from the City discharges into the Salinas River (critical steelhead habitat) and the MBNMS. Diverting this polluted water to the WWTP will help to mitigate pollution problems in these water bodies by decreasing the mass of potentially deleterious constituents released into the river—including oil and grease, nutrients, trace metals and synthetic organics, and pathogenic organisms.

3.2.3 Additional Benefits

Other benefits of the project include:

1. Increased Crop Production. Diverting and treating this water for agricultural use has the potential to increase crop yield, especially as the current drought depletes water availability and seawater intrusion threatens the groundwater supply. Furthermore, the additional water could help expand the service area for the CSIP.
2. Increased Number of Native Species. The Salinas River supports a steelhead population, but current levels of pollution threaten that population. The Salinas River also provides riparian habitat as part of the Salinas River National Wildlife Refuge, which is home to several endangered species. Reducing the amount of urban and industrial pollution discharged into the river will have a positive impact on steelhead and the threatened and endangered species in the wildlife refuge.

3.3 Regional and Project Map

3.3.1 Regional Map

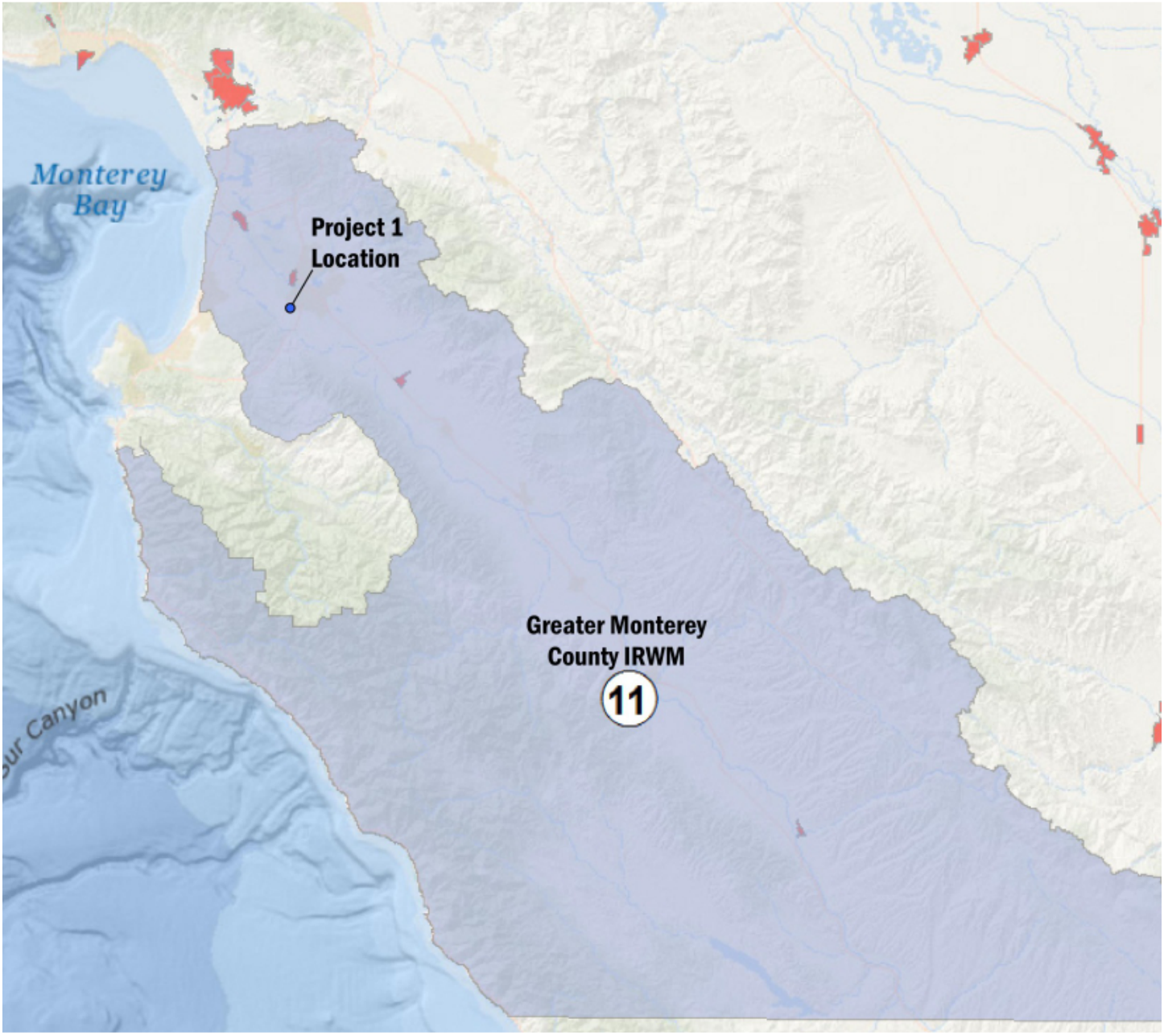

Figure 3-1. Regional Map and Project Location

3.3.2 Project Maps

For the project, the City will construct the new facilities on City-owned property northwest of Hitchcock Road and southwest of Davis Road, an area that receives runoff from the South Salinas neighborhoods. The City also will repurpose the Blanco Detention Basin to become part of the stormwater pretreatment system, prior to diversion and combination with raw sewage. Figures 3-4, 3-5 and 3-6 identify these areas and key project features and components.

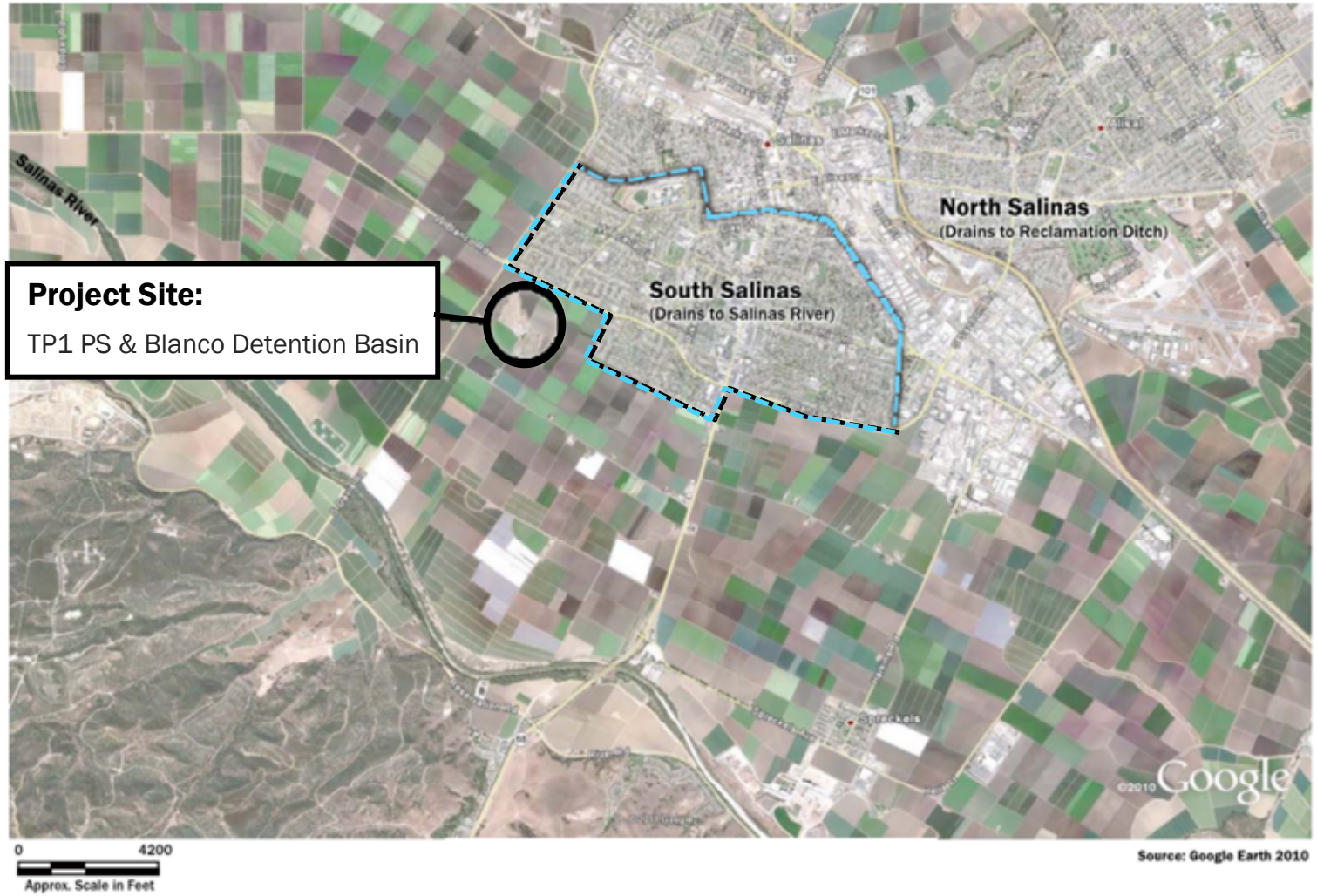

Figure 3-2. Project 1 Location Map

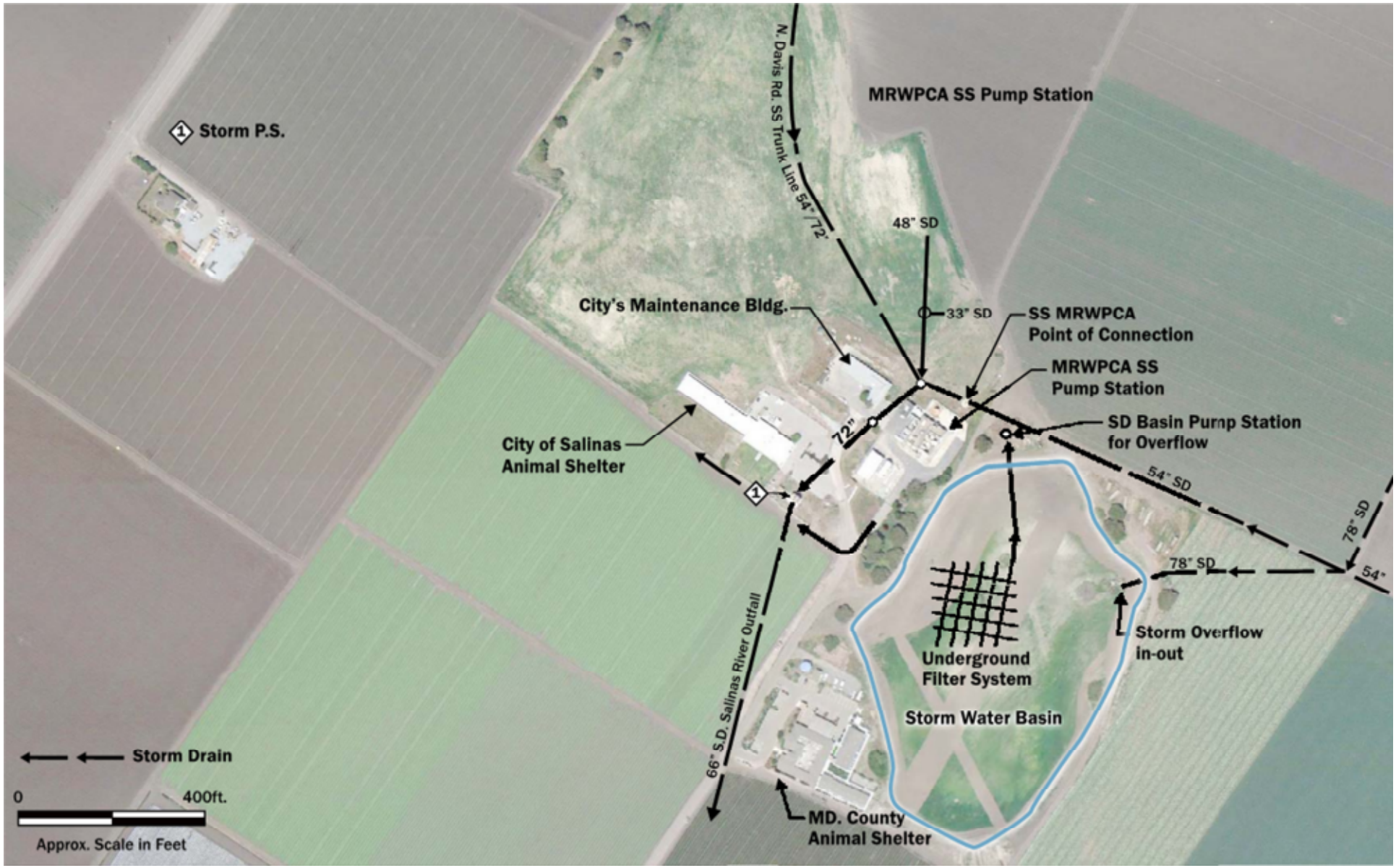

Figure 3-3. Project 1 Site for South Salinas Stormwater Diversion, Existing Storm Drain (SD) System and Existing Sanitary Sewer (SS) TP1 Pump Station

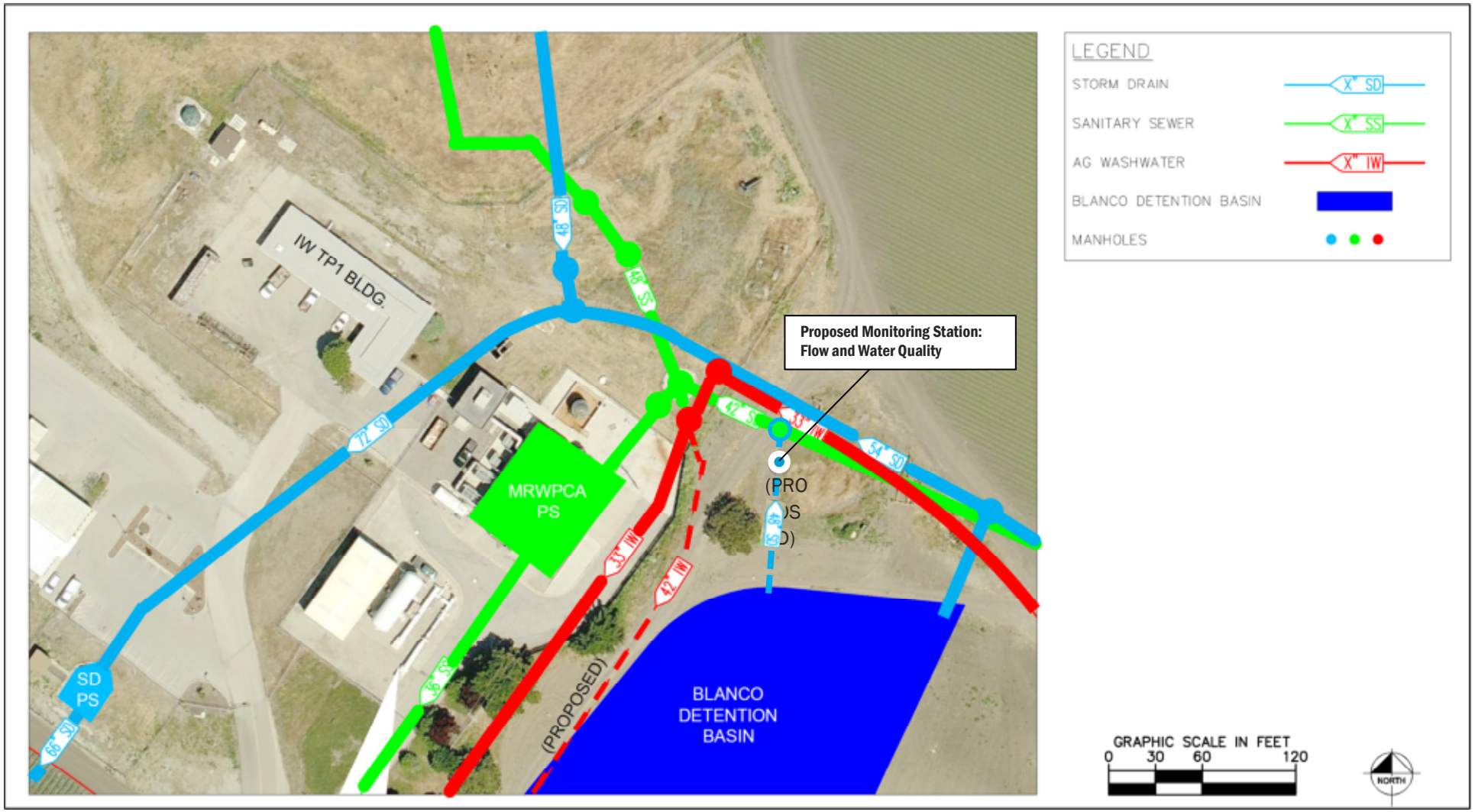

Figure 3-4. Project 1 Facilities

This project will provide benefits to the aquifers in Castroville region of California's Central Coast as well as the critical steelhead habitat in the Salinas River. Seawater intrusion reduction benefits will affect groundwater supplies in the aquifer in the Castroville area as well as agricultural land in the CSIP program, areas shown in Figure 3-5 and 3-6. Pollution mitigation benefits will have direct and ancillary benefits for the Salinas River, MBNMS, and the Salinas River National Wildlife Refuge as shown in Figure 3-7.

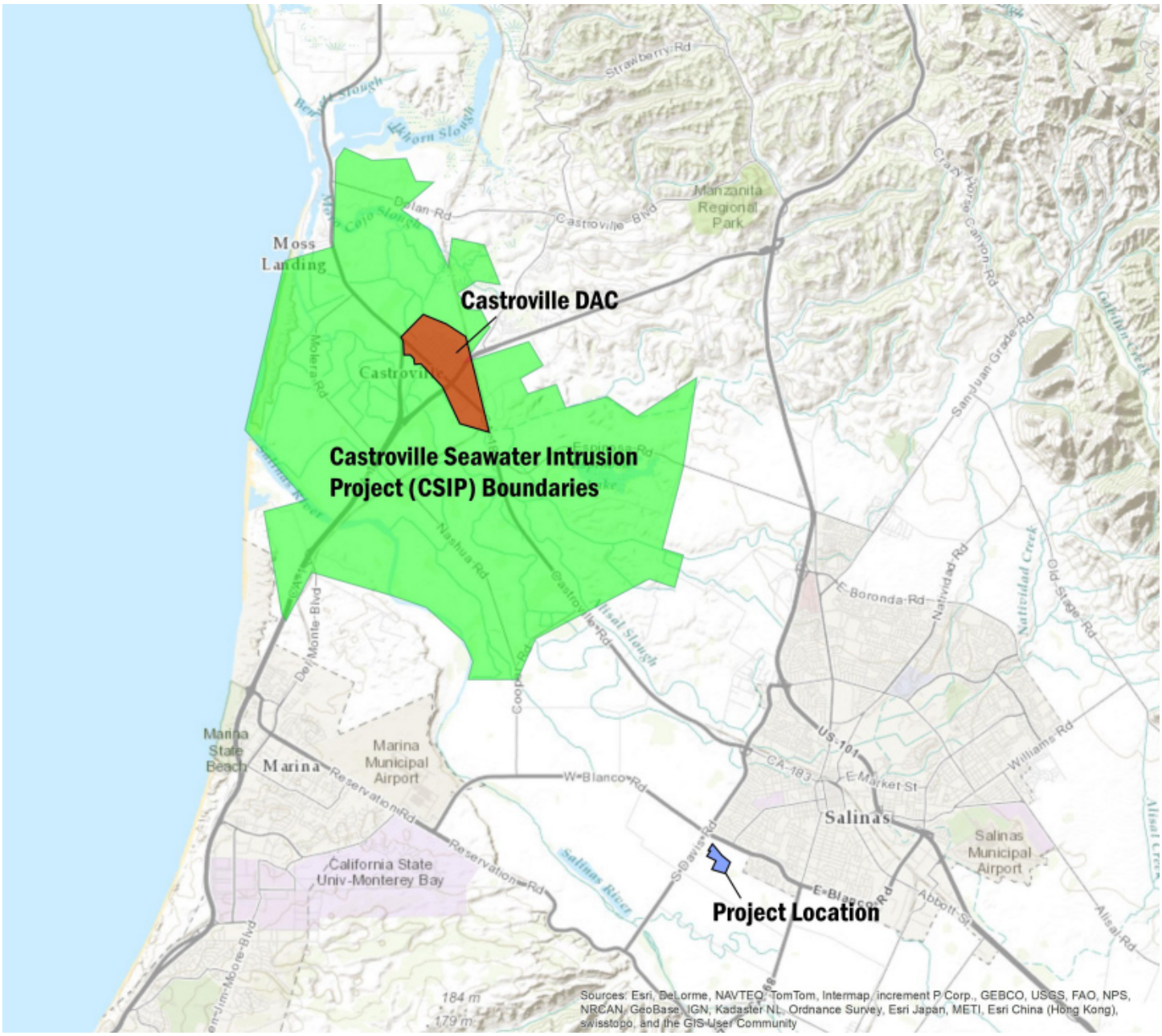

Figure 3-5. Region of Benefit: Drought Preparedness, Agricultural Water via CSIP

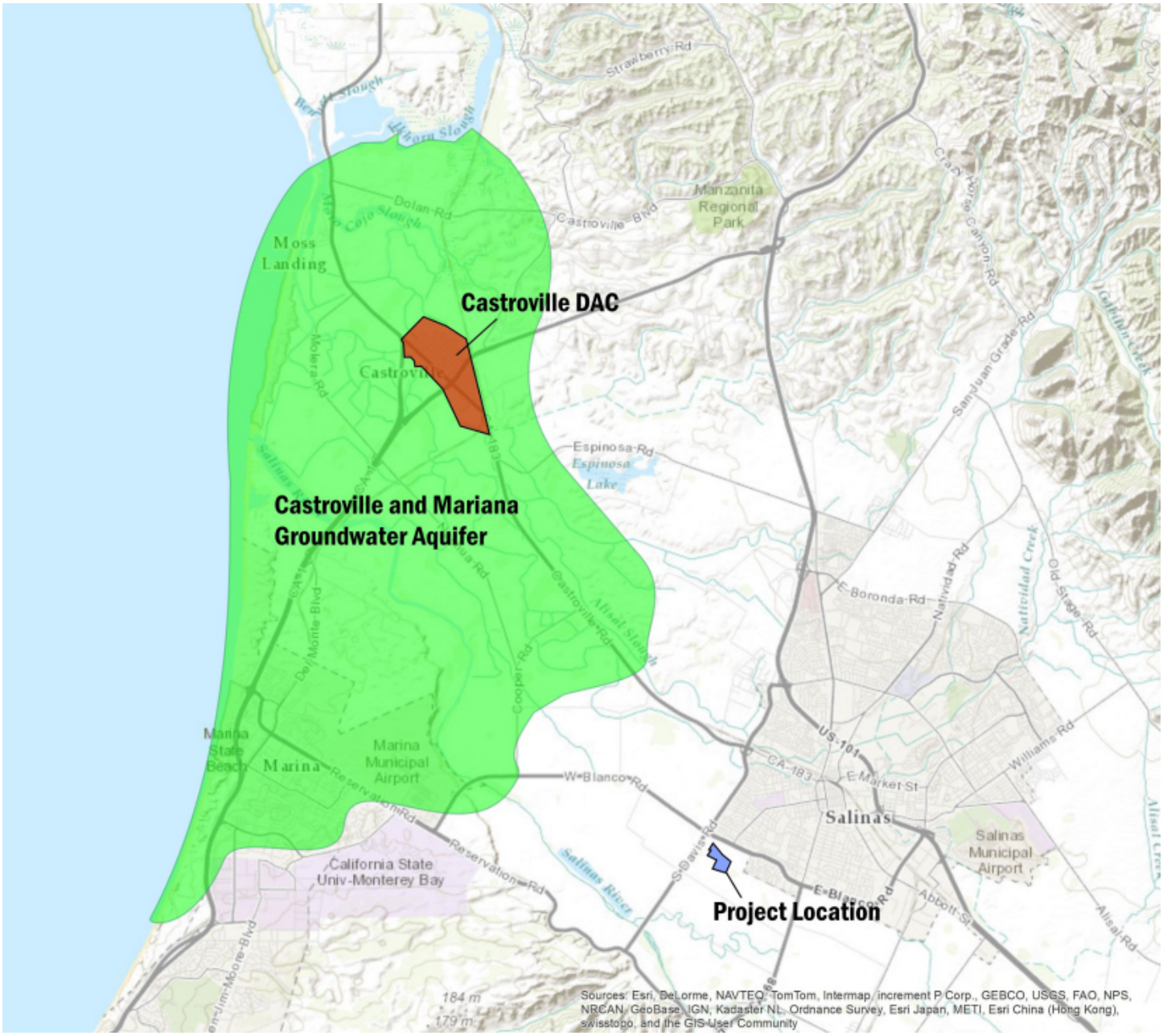

Figure 3-6. Region of Benefit: Drought Preparedness, Drinking Water via Groundwater Supply

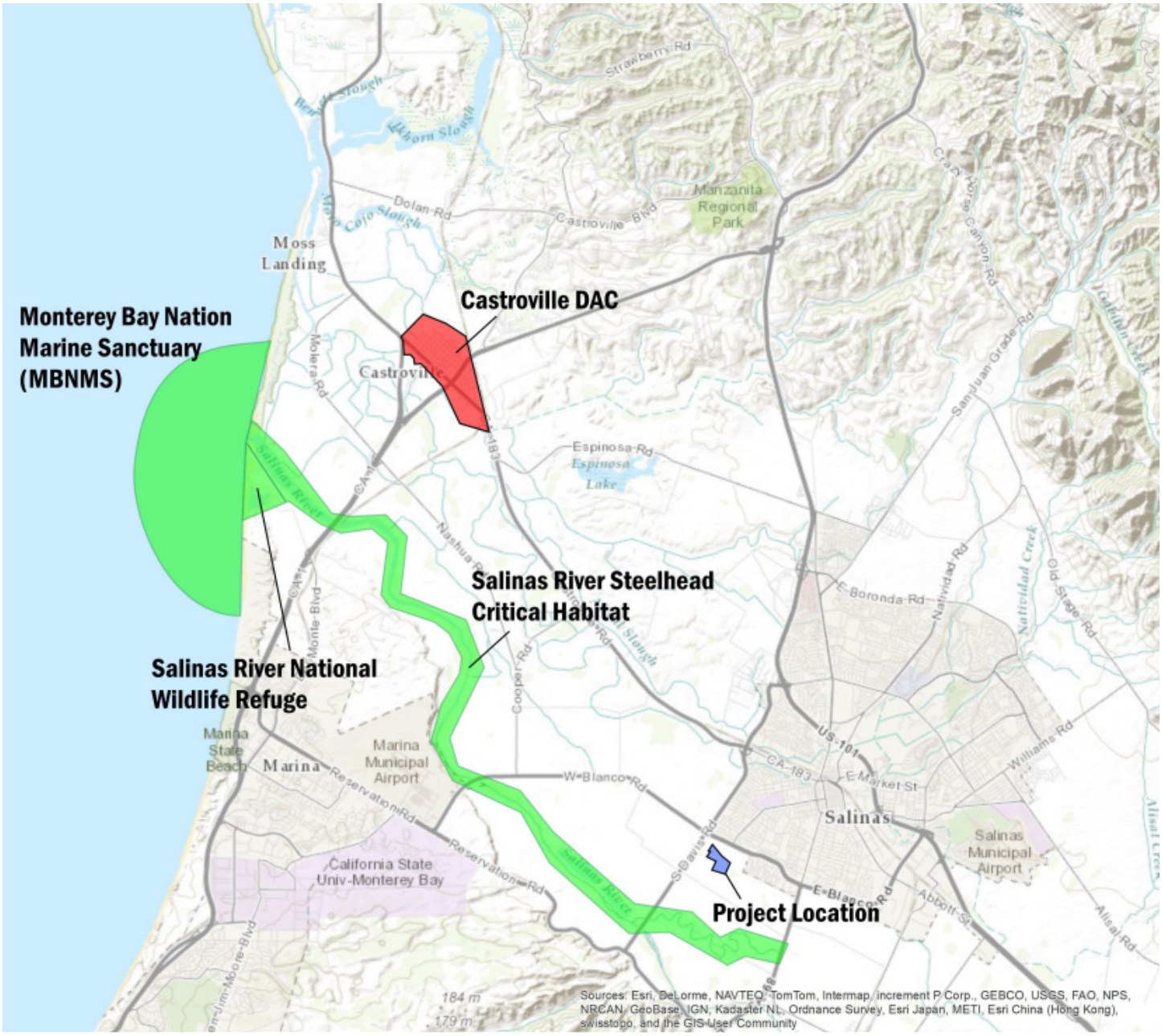

Figure 3-7. Region of Benefit: Pollution Mitigation

3.4 Project Physical Benefits

Table 5 – Annual Project Physical Benefits **Project Name:** Drought Relief through Stormwater Diversion for Water Supply **Type of Benefit Claimed: Water Available for Reuse from South Salinas Urban and Industrial Runoff** **Units of the Benefit Claimed : AF** **Additional Information About this Benefit:**			
(a)	**(b)**	**(c)**	**(d)**
	Physical Benefits		
Year	**Without Project**	**With Project**	**Change Resulting from Project (b) – (c)**
2014	0	250	250
2015	0	250	250
2016	0	250	250
Etc.	0	250	250
Comments: Benefit will continue indefinitely once the project is implemented			

Table 5 – Annual Project Physical Benefits **Project Name:** Drought Relief through Stormwater Diversion for Water Supply **Type of Benefit Claimed: South Salinas Dry Weather Runoff Pollution Reduction to Salinas River** **Units of the Benefit Claimed : Percent** **Additional Information About this Benefit:**			
(a)	**(b)**	**(c)**	**(d)**
	Physical Benefits		
Year	**Without Project**	**With Project**	**Change Resulting from Project (b) – (c)**
2014	0	100	100
2015	0	100	100
2016	0	100	100
Etc.	0	100	100
Comments: This table shows percent of pollution reduction rather than amount of constituents because the exact amount of constituents will vary. Tables 3-1 and 3-2 below provide an example of the amounts and types of constituents that will be captured and prevented from entering the Salinas River and downstream habitats. The tables show the maximal results of water quality samples taken from two outfalls that capture runoff from South Salinas, monitored in February 2014. Benefits will continue indefinitely once the project is implemented.			

Table 5 – Annual Project Physical Benefits			
Project Name: Drought Relief through Stormwater Diversion for Water Supply **Type of Benefit Claimed: South Salinas Shoulder Month Pollution Reduction to Salinas River** **Units of the Benefit Claimed : Percent** **Additional Information About this Benefit:**			
(a)	**(b)**	**(c)**	**(d)**
	Physical Benefits		
Year	**Without Project**	**With Project**	**Change Resulting from Project (b) – (c)**
2014	0	80	80
2015	0	80	80
2016	0	80	80
Etc.	0	80	80
Comments: This table shows percent of pollution reduction rather than amount of constituents because the exact amount of constituents will vary. Tables 3-1 and 3-2 below provide an example of the amounts and types of constituents that will be captured and prevented from entering the Salinas River and downstream habitats. The tables show the maximal results of water quality samples taken from two outfalls that capture runoff from South Salinas, monitored in February 2014. Benefits will continue indefinitely once the project is implemented.			

Table 5 – Annual Project Physical Benefits			
Project Name: Drought Relief through Stormwater Diversion for Water Supply **Type of Benefit Claimed: South Salinas First Flush Pollution Reduction to Salinas River** **Units of the Benefit Claimed : Percent** **Additional Information About this Benefit:**			
(a)	**(b)**	**(c)**	**(d)**
	Physical Benefits		
Year	**Without Project**	**With Project**	**Change Resulting from Project (b) – (c)**
2014	0	95	95
2015	0	95	95
2016	0	95	95
Etc.	0	95	95
Comments: This table shows percent of pollution reduction rather than amount of constituents because the exact amount of constituents will vary. Tables 3-1 and 3-2 below provide an example of the amounts and types of constituents that will be captured and prevented from entering the Salinas River and downstream habitats. The tables show the maximal results of water quality samples taken from two outfalls that capture runoff from South Salinas, monitored in February 2014. Benefits will continue indefinitely once the project is implemented.			

3.5 Technical Analysis of Physical Benefits Claimed

3.5.1 Technical Basis of the Project

The City of Salinas (City) drains part of its stormwater and dry-weather surface runoff to the Salinas River (South Salinas--about 1,630 acres south of Market Street), which flows to the Monterey Bay National Marine Sanctuary (MBNMS). Currently an average of about 200 acre-feet per year (AF/yr) of untreated urban and industrial stormwater runoff from South Salinas discharges into the Salinas River near Davis Road. The maximum annual volume in the last 80 years is estimated to be 650 AF. In reality these runoff estimates are an underestimate of the total runoff as they are based on precipitation and do not account for dry-weather flows (agricultural and industrial runoff such as irrigation flow, washwater flow, etc.). During dry weather the City discharges an additional 50 to 100 AF/yr of surface runoff to the river from South Salinas. Thus the total average annual South Salinas discharge is about 250 to 300 AF with a potential maximum of 700AF.[1]

Discharging runoff into the Monterey Bay through the Salinas River presents two problems: one, polluted water flows into critical steelhead habitat in the Salinas River and the MBNMS untreated, and two, large amounts of water that could otherwise be recycled and used to protect the threatened groundwater supply, flow to the sea. In the face of current drought conditions, increased seawater intrusion in the groundwater supply and the continuing decline of steelhead in the Salinas River are urgent concerns. To provide more water resources for groundwater recharge, indirect potable reuse and/or agricultural irrigation, while simultaneously reducing pollutant discharge into the Salinas River and MBNMS, the City and Monterey Regional Water Control Agency (MRWPCA) need to divert and treat this urban and industrial runoff to provide an additional water source to the area.

The project is based on Caltrans Best Management Practices for near-source filtration and infiltration using a detention basin or media filter. The City chose to use a detention basin as a primary stormwater filtration system as it is proven to provide very effective primary filtration. Caltrans performed a study published in the BMP Retrofit Pilot Program Final Report, which analyzed the effectiveness of several implementations of detention basins and media filters. The study found that such filters are very effective at filtering effluent and removing trash and pollutants near their source, providing temporary storage and infiltration in the process.[2] Furthermore, as the detention basin is already in place, fully functional and under capacity, using the detention basin is the most cost-effective way to achieve the goal of 100% dry-weather runoff capture, and it is the preferred method of pollution reduction to the Salinas River as recommended in the Pollutant Load Reduction Plan Salinas River Outfall report.[3]

Regarding contaminant removal and water reuse feasibility, MRWPCA WWTP has a long record of effectively removing raw sewage constituents and will continue to use appropriate and proven processes to treat diverted water and deliver high quality recycled water. This recycled water has been made available to growers in the Castroville Seawater Intrusion Project (CSIP) since 1992, and has been proven to greatly reduce grower dependence on groundwater and reduce seawater intrusion in the 180/400-Foot Aquifers (shown in Figure 3-8 in section 3.5.2). Furthermore, the WWTP currently operates under capacity and is capable of treating and delivering the additional flow without any required modifications or upgrades. According to MRWPCA Recycled Water Program Assistant Mike McCullough, the WWTP uses about 21 mgd of 29.6 mgd available capacity.

3.5.2 Recent Historical Conditions and Background

Castroville Disadvantaged Community Drinking Water Issues: The Castroville Community Services District (CCSD) serves water to about 7,400 residents in the community of Castroville, a disadvantaged community (DAC). The CCSD currently delivers about 820 AFY (0.73 million gallons per day). The district draws water from the 400-Foot aquifer through three wells. The static water level is more than 100 feet below sea level for these wells, having dropped nearly 80 feet over the past three months. If the levels drop any lower they will be below the CCSD's level transmitters. As an apparent direct result of ongoing drought conditions, the water quality for two of these wells has degraded markedly, with chloride concentration at Well 3 increasing by over 130 mg/L in the past month to 476 mg/L of chloride. Owing to the continuing water table drop, CCSD's energy costs for pumping have increased about $3,000 per month, compared to the same wells and the same calendar dates last year. CCSD

[1] This is a conservative estimate based on "Runoff Estimation for Salinas River Watershed Portion of the City of Salinas", July 18 2013, Filename "Att3_DG_ProJust_5of9.pdf", Pages 1-12

[2] Cal Trans, BMP Retrofit Pilot Program Final Report, January 2014, Filename "Att3_DG_ProJust_2of9.pdf", Page 16-3

[3] Prepared by Larry Walker Associates, Second Revision 2013, Filename: "Att3_DG_ProJust_3of9.pdf", Page 33

General Manager Eric Tynan says he expects to lose one or two of these wells by the end of August. He hopes to drill a new well further to the east but the cost will be substantial, over $1 million.

CCSD also owns one well currently not in service that penetrates into a much deeper aquifer, roughly 1,400 feet deep. This well's water quality is problematic. Its arsenic (As) concentration is 17 micrograms per liter (µg/L), well above the maximum contaminant level of 10 µg/L. Furthermore, the deeper well water has elevated sulfur compounds and is odorous. CCSD estimated that an As treatment system would cost about $1 million per well. CCSD also is considering desalination, which would also be very costly, in lieu of drilling a new well or treating groundwater to remove As and sulfur compounds.

This project is designed to divert stormwater from South Salinas to provide more water to the CSIP, to prevent seawater contamination of the groundwater aquifer that serves CCSD. This project will provide a new water source to growers to alleviate the strains on the groundwater supply, thus protecting CCSD's threatened drinking water source, the 400-Foot aquifer. Grant funding will reduce drought impacts for CCSD and reduce irrigation well pumping from the 180/400-foot aquifer.

Salinas River Designated as Critical Habitat for Steelhead: South-Central California Coast steelhead (*Oncorhynchus mykiss*) is federally listed as threatened (listed in 1997 and reconfirmed in 2006). Critical habitat has been designated for South-Central California Coast steelhead within the Salinas River basin, which includes the Salinas River and the Salinas River Lagoon. The South-Central California Coast steelhead populations have declined from annual runs totaling 27,000 spawning adults to less than 500. Pollutants, including turbidity, have adverse impacts on steelhead habitat. The project will help reduce the amount of pollutants in the Salinas River and thereby help protect steelhead.

Monterey Bay National Marine Sanctuary: The Salinas River discharges into the federally protected Monterey Bay National Marine Sanctuary. The MBNMS encompasses four Critical Coastal Areas (CCA), two Areas of Special Biological Significance (ASBS), and five Marine Protected Areas (MPA).[4] The MBNMS was designated in 1992 as a federally protected marine area offshore of California's Central Coast. Supporting one of the world's most diverse marine ecosystems, it is home to numerous mammals, seabirds, fishes, invertebrates and plants in a remarkably productive coastal environment. Nearshore coastal areas show a number of problems resulting primarily from nonpoint sources of pollution, including elevated levels of nitrates, sediments, persistent pesticides, metals, bacteria, pathogens, detergents, and oils.[5] According to the Monterey Bay National Marine Sanctuary Condition Report 2009 (Office of National Marine Sanctuaries, 2009, pp. 55-59)[6], "Pollutants associated with urban development and agricultural cultivation exert pressure on nearshore water quality conditions in the sanctuary. … Non-point sources flow into rivers that drain to the sanctuary and deliver substantial loads of persistent organic pollutants…to the nearshore environment."[7]

Salinas River Contaminants: The lower Salinas River (from the estuary to Gonzales Road) has the most pollutant impairments identified on the 2010 California Clean Water Act 303(d) list of any other water body on the Central Coast, with 19 impairments. Impairments in the lower Salinas River include: pesticides, chlorpyrifos, diazinon, chlordane, DDD, dieldrin, toxaphene, nitrate, PCBs, turbidity, unknown toxicity, fecal coliform, E. coli, enterococcus, sodium, chloride, electrical conductivity, total dissolved solids, and pH. South Salinas urban and industrial runoff contributes a significant amount of pollutants to the lower Salinas River. Constituents contained in urban and industrial runoff from South Salinas typically include nutrients, pathogens, salts, and pesticides.

According to the Fact Sheet for the City's stormwater Order No. R3-2012-0005, National Pollutant Discharge Elimination System (NPDES) Permit No. CA0049981 (Permit) : "…there is evidence that stormwater discharges from the Permit coverage area are significant sources of the following pollutants that cause or may be causing or threatening to cause or contribute to water quality impairment in the Salinas River: nitrate/nitrite as N, orthophosphate as P, ammonia as N (total), chlorophyll a, fecal

[4] Protected areas include: Elkhorn Slough (CCA and MPA), Moro Cojo Estuary (MPA), Old Salinas River Estuary (CCA), Salinas River (CCA), Julia Pfeiffer Burns Underwater Park (CCA and ASBS), Point Lobos (MPA), Point Sur (MPA), Big Creek (MPA), and the ocean area surrounding the mouth of Salmon Creek (ASBS).

[5] Action Plan I: Implementing Solutions to Urban Runoff, Monterey Bay National Marine Sanctuary, 1996. Filename: "Att3_DG_ProJust_9of9.pdf", Page 4

[6] Filename "Att3_DG_ProJust_7of9.pdf", pages 55-59

[7] Filename "Att3_DG_ProJust_8of9.pdf ", To see a summary of impacts on the nearshore environment, go to the MBNMS website: http://sanctuaries.noaa.gov/science/condition/mbnms/welcome_near.html

coliform, total coliform, E. coli, total dissolved solids, boron (dissolved), chloride, and sodium."[8] The proposed project will provide 100% reduction in contaminants discharged into the Salinas River and MBNMS from dry-weather urban and industrial runoff from South Salinas. Tables 3-1 and 3-2 below summarize the maximum pollutant loads from South Salinas into the Salinas River that were detected during sampling that occurred in February 2014 (at the Salinas River Pump Station and Salinas River Outfall monitoring stations).[9]

Table 3-1. Pyrethroids

	Gamma-Cyhalothrin	Lambda-Cyhalothrin	Bifenthrin	Cyfluthrin	Esfenvalerate	Permethrin (cis-)	Permethrin (trans-)	Cypermethrin	Fenvalerate
	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
LC_{50}/CVRWQCB Acute Criteria	N/A	1	4	0.3	N/A	10	10	1	N/A
February 2014	8.7	7.6	54.2	15.8	4	54.2	80.4	22.5	4.1

Table 3-2. Trace Constituents

	Turbidity	Dissolved Oxygen	Total Dissolved Solids (TDS)	Dissolved Orthos-phosphate as P	Total Nitrate + Nitrite (as N)	Total Nitrogen	Total Ammonia as N	Unionized Ammonia	Fecal Coliform	Total Coliform	Copper	Zinc
	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	(MPN/ 100ml)	(MPN/ 100ml)	µg/L	µg/L
WQ Obj & Basin Plan Action Levels	126	<5.0		0.44	10			0.025	400		129	982
Feb. 2014	**151.6**	10.27	255	.24	2.5	.49	.29	.0017	**7000**	17000	22.8	82.1

Groundwater Overdraft: Over the last 80 plus years, the quality of water and storage capacity in northern Salinas Valley groundwater aquifer has degraded progressively owing to seawater intrusion. Figures 2-1 and 2-2 show the progression of seawater into the Salinas Valley Groundwater Basin aquifers of the Greater Monterey County region.

To offset groundwater overdraft and the resulting salt water intrusion, the MRWPCA regional wastewater treatment plant (WWTP) currently supplies recycled water to about 12,000 acres of agricultural land annually throughout the northern valley and adjacent community of Castroville. Additional water is provided to growers from the Salinas River Diversion Facility (i.e., diverted river water) to further offset groundwater overdraft. This program – the Castroville Seawater Intrusion Program – has greatly reduced overdraft and slowed seawater intrusion since its inception in 1992. However, it has not solved the problem. As shown in Figure 3-8, the CSIP program has slowed the advance of seawater into the groundwater aquifers, but it has not stopped it.

This year due to drought, MCWRA has suspended diversions from the Salinas River Diversion Facility for growers in the northern valley because of insufficient supply in the Nacimiento and San Antonio reservoirs. In addition, reduced water conservation by sewer flow contributors has decreased the amount of water reaching the MRWPCA regional WWTP. As a result, the amount of water available to growers through the CSIP has been reduced, and growers are having to draw much more heavily on groundwater to irrigate their fields. As comparison: Last year, a total of 24,752 AF was used to irrigate approximately 12,000 acres of crops. Of that amount, 15,485 AF was recycled water, 6,093 AF was river water, and 3,175 AF was well water. This year through June, 11,301 AF has been used to irrigate crops, with 7,936 AF recycled and 3,365 AF well water. And the year is only halfway over.

Increased overdraft of the coastal aquifers due to drought is escalating the advancement of seawater intrusion into the Greater Monterey County region's primary water source. If the drought continues into 2015, growers and water agencies will be forced

[8] Filename "Att3_DG_ProJust_6of9.pdf", page 7

[9] Data obtained from City of Salinas Monitoring Program Sample Data, Filename "Att3_DG_ProJust_4of9.xls"

to continue to overdraft these aquifers, which could devastate the water supply in the area for both agricultural and residential use and further impact groundwater supply for the larger region. This project will slow the degradation of the aquifers by providing growers with an alternate source of water.

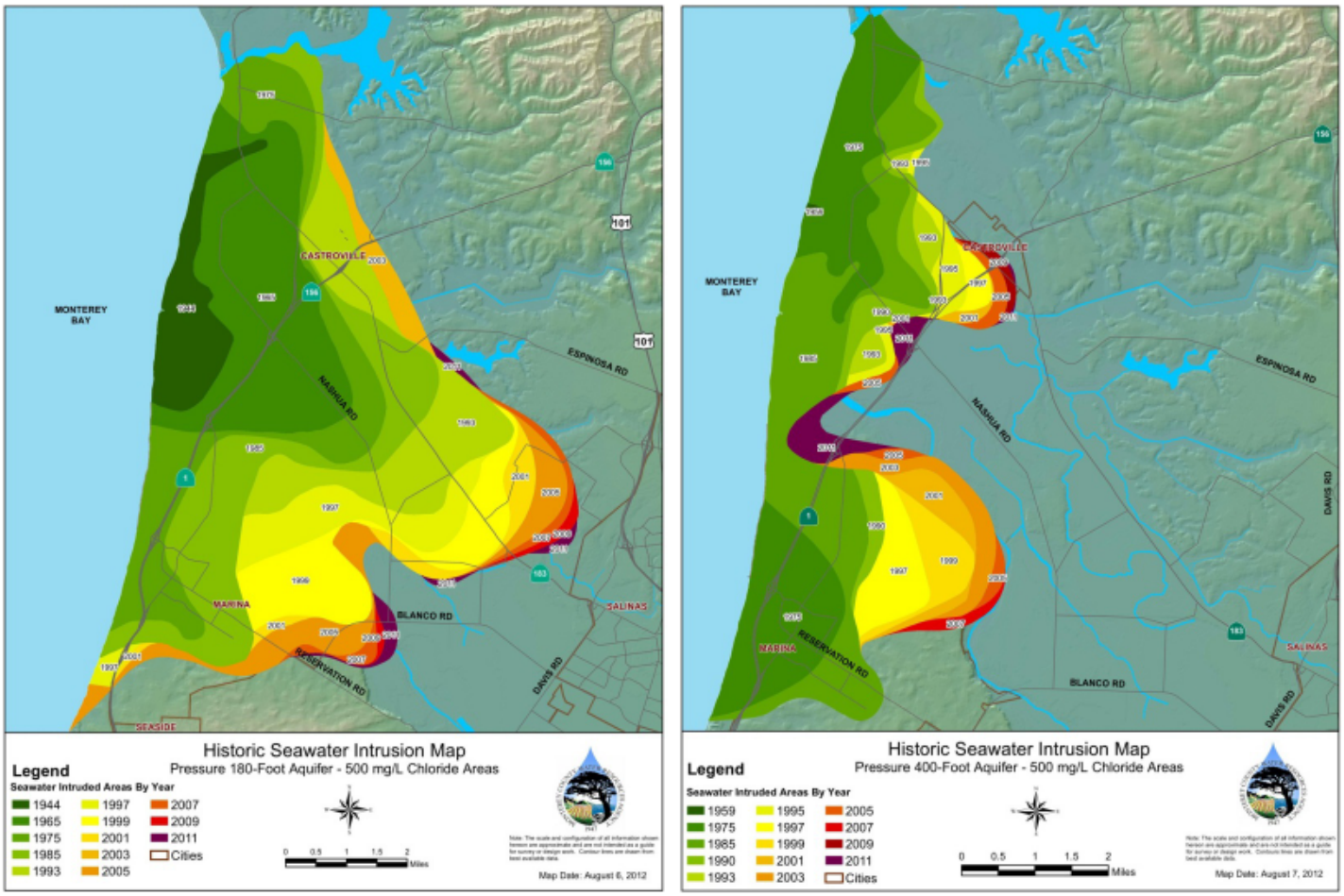

Figure 3-8. Seawater Intrusion Impacts in 180/ 400-Foot Aquifers[10]

3.5.3 Estimates of Without-Project Conditions

Without this project, each issue described in the previous section "Historical Condition and Background" will either worsen or remain unimproved.

Castroville Disadvantaged Community Drinking Water Issues: Seawater intrusion in the 180/400 Aquifers will continue to degrade CCSD's water supply. As stated above, CCSD General Manager Eric Tynan says he expects to lose one or two of these wells by the end of August. Without this project, CCSD will be forced to choose from one of several very expensive options described above, each costing $1 million plus in initial investment. Any of these solutions will force CCSD to raise rates, which will affect the access to affordable drinking water for members of the DAC.

Pollutant Loads to the Salinas River: With reduced surface water flows due to the continued drought, concentrations of the harmful constituents will increase as the pollutant loading will remain the same without diverting the highly polluted surface runoff. This will continue to degrade the sensitive steelhead habitat and put undue pressure on a threatened species. Furthermore, the pollutant loading discharged from South Salinas to the Salinas River and into MBNMS will continue to exert pressure on the sanctuary and its associated CCAs, MPAs and ASBSs if this project is not implemented. As the proposed project is the most cost-effective method to provide this benefit, without its implementation it is doubtful that any reduction in this pollutant loading will be observed.

[10] Monterey County Water Resources Agency, Retrieved July 2014 at http://www.mcwra.co.monterey.ca.us/SVWP/01swi400.pdf and http://www.mcwra.co.monterey.ca.us/SVWP/01swi180.pdf

Groundwater Overdraft: Without diverting runoff as proposed in this project, there will be no increased flows to CSIP from South Salinas. This project utilizes a great deal of existing infrastructure, which makes it by far the most cost-effective solution to achieve the benefit of increased flow to CSIP. Without the implementation of this project, the urban runoff from South Salinas will continue to discharge into the Salinas River without being treated for reuse.

3.5.4 Description of Methods Used to Estimate Physical Benefits

Project benefit estimates were based on historical data and studies for similar projects.

Water Available for Reuse from South Salinas Urban and Industrial Runoff – 250 AF/year: A recent study analyzed the estimated annual stormwater runoff from South Salinas to be 206 AFY.[11] MRWPCA Recycled Water Program Assistant, Mike McCullough, estimates dry weather flows of roughly 50 AF based on average the water level observed in the South Salinas drainage infrastructure. Thus, the combination of the dry weather runoff and average annual stormwater flows is estimated to be 250 AFY. MRWPCA WWTP has a long record of effectively removing raw sewage constituents and will continue to use appropriate and proven processes to treat diverted water and deliver high quality recycled water. This recycled water has been made available to growers in the CSIP since 1992, and this proposed 250 AF diversion will be able to be delivered to CSIP with 100% certainty.

South Salinas Dry Weather Runoff Pollution Reduction to Salinas River – 100%: The current infrastructure is designed to capture all dry weather runoff, and it has a long standing record of doing so. However, currently the system discharges this water directly into the Salinas River at the Salinas River Outfall. By simply diverting this water in the MRWPCA WWTP, none of this water will reach the Salinas River. This assertion is based on the fact that the existing infrastructure to be used, MRWPCA's TP1 pump station and WWTP, currently operate under capacity in dry weather and are projected to do so into the future, especially as continued conservation reduces dry-weather hydraulic loading. Furthermore, the Pollution Load Reduction Plan study, prepared by Larry Walker Associates for the City of Salinas, showed that this method would be the most effective and reasonable method for addressing these pollution loads to the Salinas River. Dry-weather urban-runoff flow diversion and treatment is a best management practice.

South Salinas Shoulder Month Pollution Reduction to Salinas River – 80% plus: During the shoulder months (fall and spring), the WWTP has both hydraulic and biological treatment capacity to process the additional stormwater flow. For example, the available (unused) dry weather WWTP capacity exceeds 8 mgd (Mike McCullough, personal communications, July 16 and 17, 2014). Similarly the TP1 raw sewage pump station has about 20 mgd of unused capacity available. Typical watershed and sewage system response to rainfall events in the fall and spring is little rainfall response infiltration/inflow to increase the raw sewage flows. Such response is especially pertinent for storms during drought events because the soil column is desiccated and hence raw sewage flows do not increase because rainfall is absorbed into the ground. Surface runoff from hardscape area (e.g., sidewalks, driveways, parking lots and streets) still occurs because no rainfall is absorbed. [Note that 80% plus is used in lieu of 100% since weather patterns and storm intensity vary. Very rarely an early or late season storm could produce considerable rainfall and runoff, increasing both stormwater and sewage flows above available capacity.]

South Salinas First Flush Pollution Reduction to Salinas River – 95% plus: The arguments presented above for shoulder months apply similarly for first flush capture with the added caveat that the TP1 pump station always would have capacity for the first flows from each storm since the pump station and connecting force main both operate well under design hydraulic capacity. Each storm's initial flow would enter the Blanco Detention Basin and flow to the TP1 pump station. [Note that 95% plus is used in lieu of 100% since weather patterns and storm intensity vary. Very rarely an early or late season storm could produce considerable rainfall and runoff, increasing both stormwater and sewage flows above available capacity.]

3.5.5 Identification of New Facilities, Policies, and Actions Required

The following key actions will need to occur and facilities constructed in order for the physical benefits to occur: 1) divert highly polluted dry-weather urban and industrial runoff and stormwater runoff from South Salinas to an existing stormwater detention basin; 2) use the detention basin and its underdrain system to remove visible trash and trace particulate contaminants; 3)

[11] This is a conservative estimate based on "Runoff Estimation for Salinas River Watershed Portion of the City of Salinas", July 18 2013, Filename "Att3_DG_ProJust_5of9.pdf", Pages 1-12

convey diverted flow combined with the City's domestic and commercial raw sewage to the MRWPCA regional waste water treatment plant (WWTP) using existing, underutilized infrastructure (TP1 and raw sewage force to the WWTP); 4) treat the stormwater through the WWTP to produce secondary effluent, then treat the secondary effluent through the Salinas Valley Reclamation Project Facility to produce extremely high quality tertiary effluent, suitable for agricultural irrigation on row crops; 5) distribute water to growers through the Castroville Seawater Intrusion Project (CSIP) distribution system, to irrigate approximately 12,000 acres.

3.5.5.1 New Facilities Required

Project implementation will utilize several existing facilities, including a pump station and conveyance infrastructure known to be greatly under capacity (TP1 and raw sewage pipeline). The City will upgrade a detention basin to capture urban and industrial runoff at TP1 and divert it to the WWTP. This project will use TP1 and the existing raw sewage force main to transfer runoff to the MRWPCA WWTP. After treatment, MRWPCA would direct the recycled water to where it would mitigate seawater intrusion and provide additional water for agriculture in the northern Salinas River valley as part of CSIP.

Construction will use methods that have been well proven over decades. As such, the proposed modifications are technically feasible to build. Operating such a pretreatment and diversion system is well proven by other agencies so no new technology is required. Engineering analyses will follow civil/environmental engineering norms and quality requirements.

Figure 3-1 shows the current pipelines and facilities at and adjacent to the TP1 site including major pipelines, the TP1 PS, and the Blanco Detention Basin.

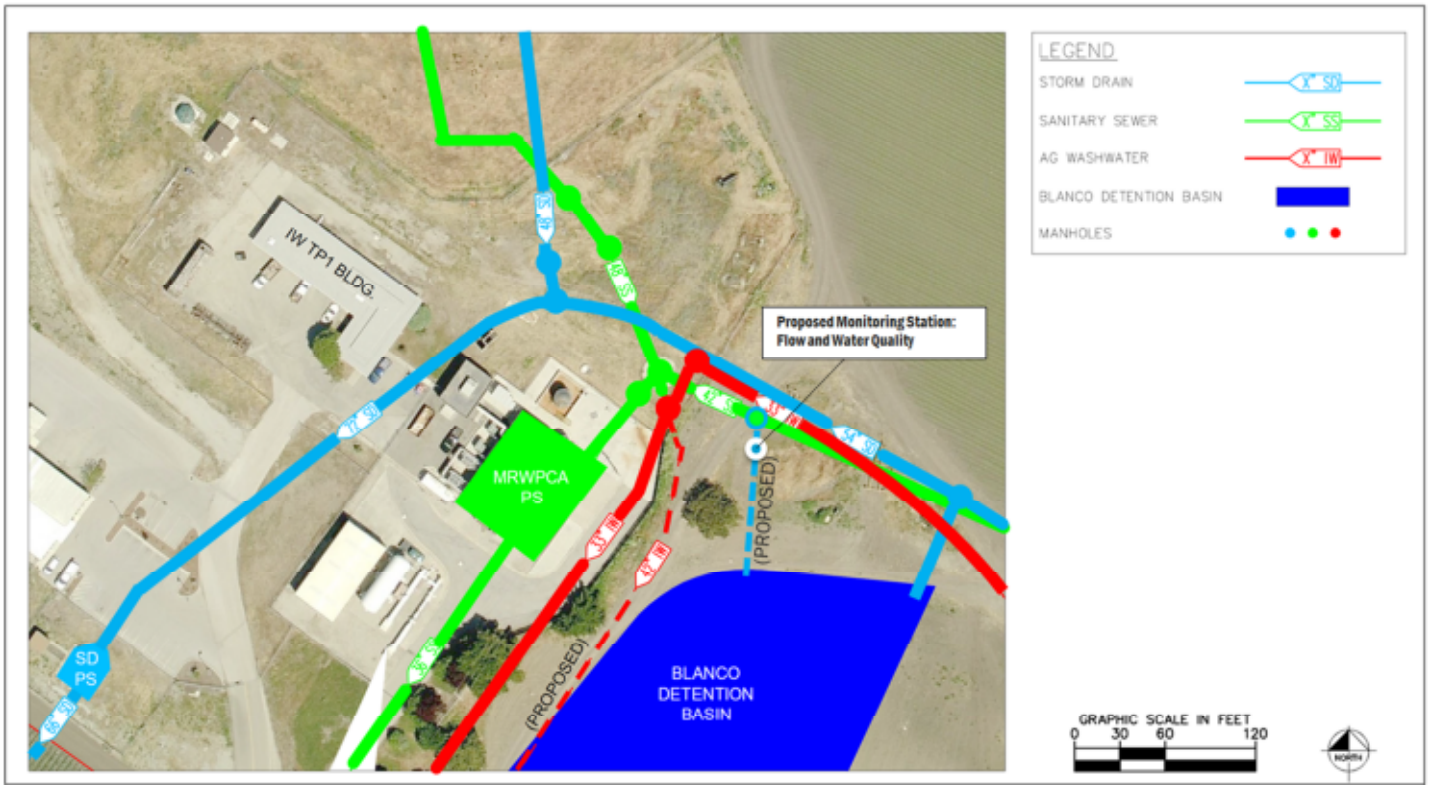

Figure 3-1. Project Facilities

Project Components

The City will divert an average of roughly 250 AF/year of urban surface water discharge from South Salinas (see Figure 3-1) into the City's Blanco Detention Basin. The City would divert water from the Detention Basin to the MRWPCA WWTP. The City would install a shunt at the City's former WWTP site (TP1, see Figure 3-1) to connect the two existing systems. Water in the basin will settle (to remove suspended solids) and filter through the soil as a pretreatment, then flow into a junction point for transfer to the MRWPCA-operated conveyance system. Shoulder-season wet weather events would be similarly diverted, provided flows do

not exceed MRWPCA capacity benchmarks (see values listed above). All diversions would reduce the amount of pollutants entering the Salinas River by capturing 100% of the dry-weather runoff from South Salinas and substantial flow during other seasons.

Once reclaimed, diverted water from South Salinas, up to 700 AF/year, will be used for dry-season water supply (e.g., as agricultural irrigation water).

New facilities will include pipeline connections, perforated pipeline installation subsurface in Blanco Detention Basin, monitoring equipment and a pump station.

3.5.5.2 New Policies Required

No new policies will be required to achieve the benefits described.

3.5.5.3 Actions Required and Monitoring

The benefits described will require coordination between the City and MRWPCA to divert and treat the new water, respectively. Additionally, to assess the performance and effectiveness of the project, ongoing monitoring action will be required.

The City will supervise construction and perform construction management, conduct formal facilities startup and then monitor actual operational performance at the following numeric targets:

Drought Preparedness

- An average of 250 additional AF/year available for reuse through CSIP for immediate response to drought conditions and ongoing drought preparedness.

Reduced Pollution from South Salinas

- 100% reduction of contaminants discharging into the Salinas River and MBNMS from dry-weather urban and industrial runoff from the South Salinas.
- 80% plus reduction of shoulder month (late fall/early spring) discharge into Salinas River.
- 95% plus of first flush pollution captured.

A recording device on the flow meter, installed as part of the project, will report readings and will document the amount of flow diverted during dry weather and wet weather. Working in conjunction with MRWPCA WWTP operators, City and MRWPCA staff would make decisions about when to divert runoff from rainfall, i.e., not exceed the WWTP's hydraulic and /or biological treatment capacity. For the stormwater basin, where pretreatment of stormwater would occur, MRWPCA staff would take influent and effluent water samples, both to document the general stormwater water quality characteristics and determine pretreatment effectiveness. Likely parameters for analyses would include total and fecal coliform bacteria, total suspended solids, biochemical oxygen demand or chemical oxygen demand, trace constituents (selected metals and synthetic organic compounds), and nutrients.

The City and MRWPCA expects to sample monthly during dry-weather as well as during storm events. They will prepare and submit quarterly monitoring reports as well as a final summary to document overall project performance. Reporting for surface water constituents will use California Environmental Data Exchange Network (CEDEN) templates to submit data to Central Coast Regional Data Center.

Table A-2 – Project Performance Monitoring **Project:** Drought Relief through Stormwater Diversion for Water Supply		
Proposed Physical Benefits	**Measurement tools and methods**	**Targets**
250 AF/year additional water to CSIP	Flow meter at Blanco Detention Basin will be used to determine total flow diverted.	250 AF/yr
100% reduction of contaminants discharging into the Salinas River and MBNMS from dry-weather urban and industrial runoff from the South Salinas	Flow meter at Blanco Detention Basin will be used to determine total flow diverted and total flow discharging into the Salinas River.	100% dry-weather flow diverted
80% plus reduction of shoulder month (late fall/early spring) discharge into Salinas River	Flow meter at Blanco Detention Basin will be used to determine total flow diverted and total flow discharging into the Salinas River. Stormwater sampling will be conducted to determine the level constituents.	80% shoulder month flow diverted
95% plus of first flush pollution captured	Flow meter at Blanco Detention Basin will be used to determine total flow diverted and total flow discharging into the Salinas River. Stormwater sampling will be conducted to determine the level constituents.	95% first flush flow diverted

3.5.6 Description of Any Adverse Physical Effects

This project will have minimal adverse impact. Transporting stormwater to and treating stormwater through the MRWPCA regional WWTP will require some energy expenditures, hence resulting in a small increase in carbon dioxide emissions. However, diverting stormwater for treatment will help address potential climate change impacts by preventing adverse conditions such as anaerobic sediments in the Salinas River, a condition that could release methane. This methane release reduction, which is a far more potent greenhouse gas than carbon dioxide, will offset the above mentioned greenhouse gas impacts.

3.6 Cost Effectiveness Analysis

Table 6 – Cost Effective Analysis **Project name:** Drought Relief through Stormwater Diversion for Water Supply	
Question 1	Types of benefits provided as shown in Table 5:
	1. Water Available for Reuse from South Salinas Urban and Industrial Runoff 2. South Salinas Dry Weather Runoff Pollution Reduction to Salinas River 3. South Salinas Shoulder Month Pollution Reduction to Salinas River 4. South Salinas First Flush Pollution Reduction to Salinas River
Question 2	Have alternative methods been considered to achieve the same types and amounts of physical benefits as the proposed project been identified?
	No alternative methods have been considered. Since this project utilizes a great deal of existing infrastructure and facilities, it would not be possible to achieve the same benefits with any less cost. Any other method of capture would require the construction of new facilities including a detention basin, pipeline, and pumping station. Since these facilities currently exist, are currently underutilized and only require reconfiguration, this project offers the most cost-effective approach.
Question 3	If the proposed project is not the least cost alternative, why is it the preferred alternative? Provide an explanation of any accomplishments of the proposed project that are different from the alternative project or methods.
	N/A
Comments:	